

Hobbies

WEEKLY

NOVEL & ARTISTIC CANOPY WALL BRACKET

LARGE DESIGN FREE

METAL WORK

★ ★ ★

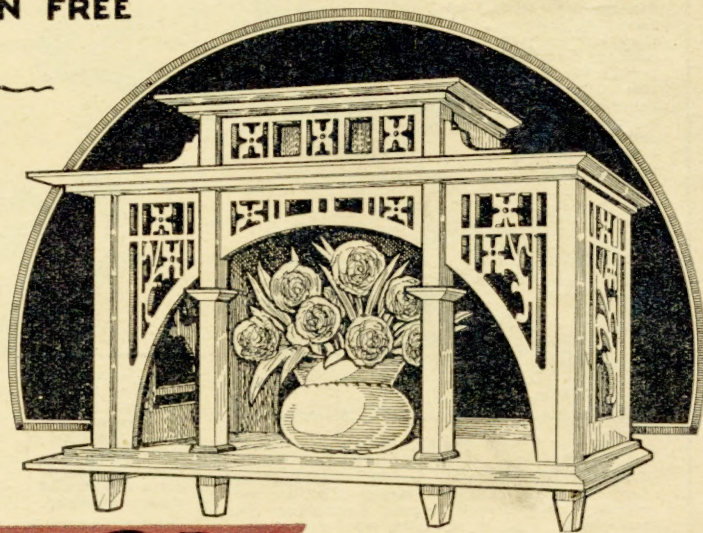
A MODEL
PADDLE
STEAMER

★ ★ ★

ELECTRICAL
EXTENSIONS
AT HOME

★ ★ ★

PHILATELY



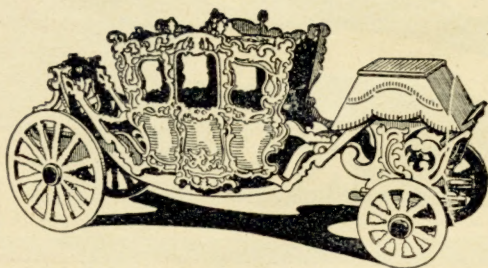
January 8th. 1938

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Vol. 85. No. 2203

THE FRETWORKER'S AND HOME CRAFTSMAN'S JOURNAL

MODELS *to make with* *a fretsaw*

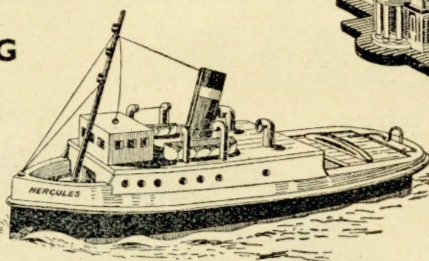


LORD MAYOR'S COACH

Design No. 1985/6. Price 8d. Size 20ins. long. A parcel of nicely-grained Whitewood with four turned wood hubs for wheels, round rod for axles, and deal for base 6/3, postage 9d. Two Glasses (5825) 3d., postage 2d. A complete parcel of design, wood and glasses, 7/9, post free.

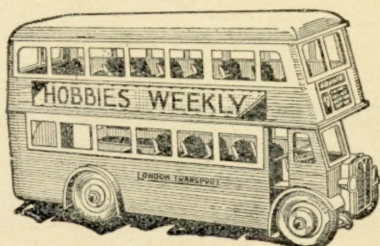
ELECTRICALLY DRIVEN MODEL TUG

Design No. 2129. Price 4d. 15ins. long. Driven by flashlamp battery. A parcel of Satin Walnut and Deal, with dowel for mast and funnel 1/8, postage 7d. A suitable motor 3/-, propeller and shaft 1/9, copper strip and pieces of brass with brass wire 6d. Postage on fittings 4d.



DOLL'S BUNGALOW

Design No. 2093. Price 4d. Size 2ft. wide by 1ft. 8ins. deep. Plywood, Whitewood, moulding, beading and round rod 12/6, carriage forward. Eight glasses 1/6, postage 6d. A parcel of design, wood and glasses, 14/10, carriage paid.

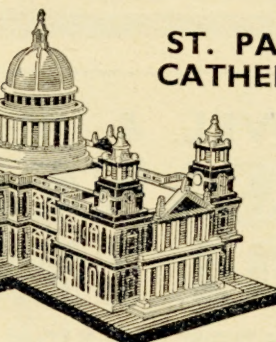


MODEL BUS

Design No. 192 Special. Price 9d. 19½ins. long. Satin Walnut with four turned wood hubs and motor lamps, 7/-, postage 1/-. Six rubber tyres, 34 glasses, wire, etc. 3/6, postage 6d.

DOLL'S HOUSE

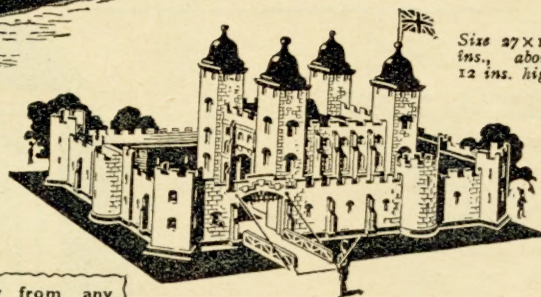
Design No. 186 Special. Price 1/- Plywood, Satin Walnut, Whitewood and mouldings, 13/6, carriage forward. Glasses, brick and tile papers, door knobs, hinges, etc., 5/6, postage 6d.



ST. PAUL'S CATHEDRAL

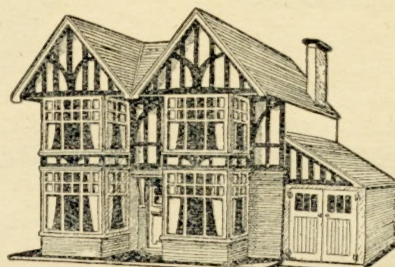
Design No. 187. Special. Price 9d. Size 19ins. long by 11ins. wide. A parcel of Mahogany and Whitewood, with Satin Walnut strips, dowering, etc., 8/-; postage 8d.

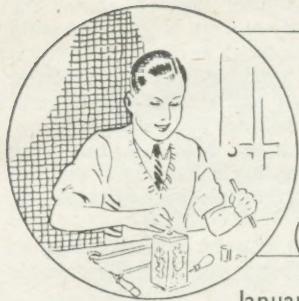
A MODEL FORT



Size 27x18 ins., about 12 ins. high

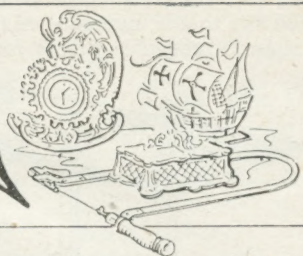
Design No. 189 Special. Price 1/-. Plywood Satin Walnut, stripwood and four dome turnings, 7/9; postage 1/-. Brass chain and hooks, hinges, stone covering paper and flags 1/-, post 2d. Complete parcel of design, wood and fittings, 10/9, post free





Hobbies

WEEKLY



January 8th. 1938

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A CANOPY BRACKET

THE design presented with this week's issue is for making a very unusual type of wall bracket, suitable for a vase or any small fancy ornament. The overall size is 16 $\frac{1}{2}$ ins. wide and nearly a foot high, but the parts are so arranged they can be cut with even a small hand frame.

It is a canopied type of bracket with a striking arched centre, whilst above the top is a smaller section with pillars running right through from top to bottom.

The whole thing is built in walnut, and beyond the actual work of cutting, there is a good deal of fitting up to be done to get the parts to lie snugly. It is, however, quite within the region of the beginner, providing he takes care to fit the pieces as they should be.

Before he starts he must get a good idea of how the thing is constructed, and follow out the various pieces on the sheet. Several of the patterns cannot be pasted down to the wood because they are required in duplicate, and a better plan is to measure off carefully and mark out according to requirements.

The general construction is shown by the open view at Fig. 1. Here we see the two centre pillars going right through the floor and top, and the two ends passing through the floor but stopping on the underside of the top. In consequence, where two pieces are shown together, one of them may have to have certain holes cut in it and the other may not.

The floor, for instance, requires four square holes to take the pillars, but the smaller design for the top requires only the two centre ones. As both these parts are shown in half only on the sheet, they must be drawn out full size for cutting.

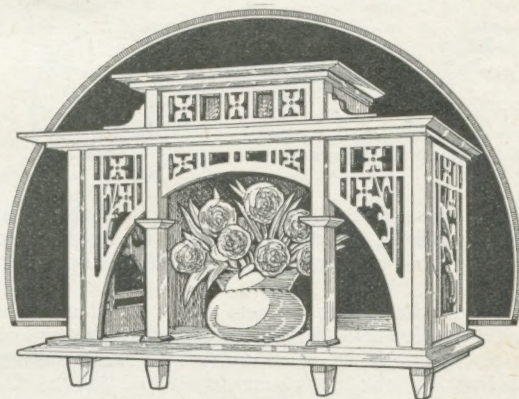
First of all, therefore, get out the floor, the top and the four upright pillars. The latter are cut from $\frac{1}{2}$ in. square wood, and the lower end is tapered off carefully with a chisel or flat file as can be seen.

The little capping pieces seen half way down the two centre pillars are cut from a single piece, the opening in their centres being just large enough to take the square post.

Two other smaller ones are required round the base, and the edge of all four must be shaped up to the section shown before putting on.

Remember to thread these on to the two centre posts before the top is put on, and glue them on 2 $\frac{1}{2}$ ins. from the underside of the top (see Fig. 2).

Helping to hold the floor and sides together are the two ends and the back. These three pieces must be cut exactly the same width, and are then glued between. The back has the centre of it cut right out for effect, and also to reduce likelihood of warping, and is then glued in place between the sides, top and bottom.



From Design Sheet No. 2203

Now we have to fit on three hollow frames each consisting of three sides mitred at the two front corners, as shown at Fig. 3. Parts for these are shown together on the design sheet, but must be cut with the apertures required for the posts as shown in the details. Beneath the floor the openings must be made for all four pillars as the posts here project above the top.

Notice, too, that the edges of these frames are chamfered as shown in the detail. This can be done with a plane, care being taken to get a straight smooth edge at the angle required. The dotted line indicates how far the chamfer has to be made, and the plane must be held at the right

angle to produce this surface. Between the end posts and the back there is also a spacing piece glued flat to the underside of the floor.

Three ornamental pieces form the front arch-

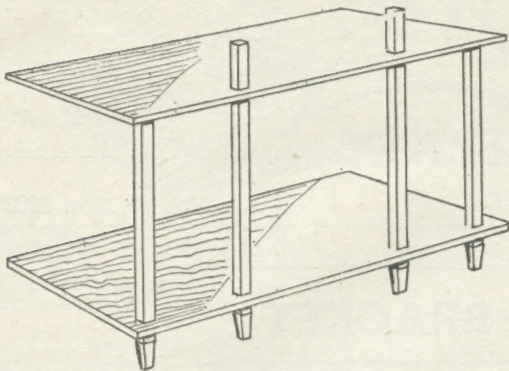


Fig. 1—General construction of framework

way, and before cutting them out test the distance between the pillars to ensure a tight fit. Notice, too, that the continuity of the arch is maintained, and test this before fitting in by leaving the bottom edge to be cut last. Of course, if you

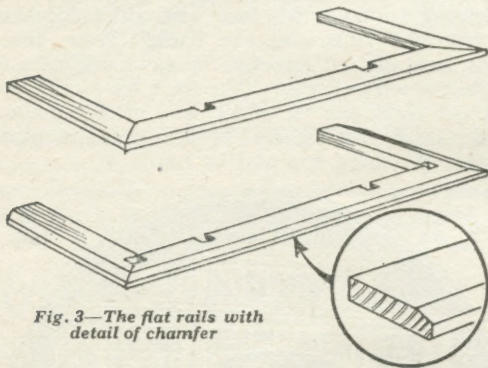


Fig. 3—The flat rails with detail of chamfer

wish, these fretted portions can be backed up with material, but there is really no need as the interior does not look unsightly with its openwork back.

These three front pieces are not glued flush with the front of the square posts, but are set back about $\frac{1}{8}$ in. to give a more attractive effect.

Now we can turn our attention to the top

portion which forms another canopy above the top itself, and the detail at Fig. 4 gives a good idea of how this is fitted. The fretted front is glued between the two posts and set back a little as usual, then the two plain sides are added, fixed to the top and to the back of the post.

Do not glue the sides on, however, until the small piece forming the back has been cut, as this will complete the rectangle and provide the distance apart.

Little blocking pieces can be added inside to strengthen out this framework, and here it is

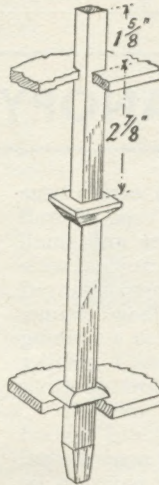


Fig. 2—Detail of a pillar

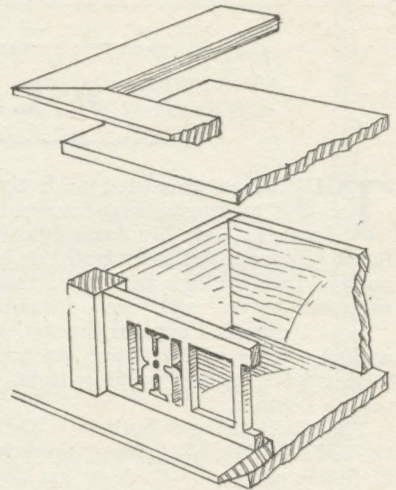


Fig. 4—How the top is built

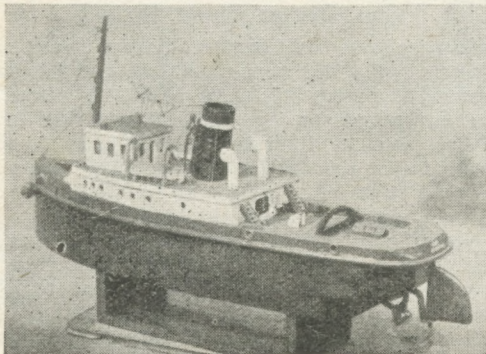
probably desirable to add a piece of backing material behind the fretted front.

Above all this comes the solid piece forming the top, then in turn another narrow framework the two front corners of which are mitred as before. This framework is also chamfered on the underside before being fitted in. There is no cross piece along the back, the straight edges of the mitred portions coming flush with the main back itself.

MATERIALS REQUIRED

Wood.—For making this design we supply a parcel of selected satin walnut, 5/-, post free 5/6.

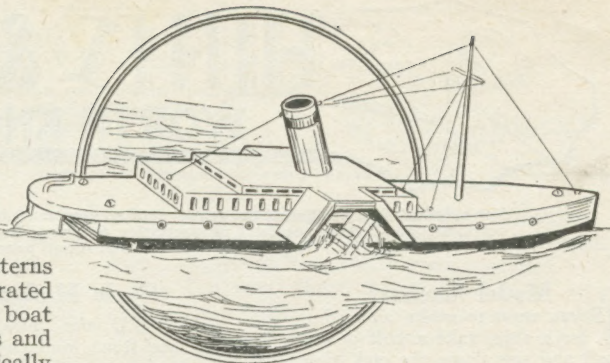
Fittings.—Linen cloth for backing, 4d., post free 6d. Complete parcel wood and cloth 5/9 post free.



A Well-Made Tug Model

THE Tug illustrated was made from our Design No. 2129 by Henry Chadwick of Warde St., Hulme, Manchester. It travels by means of an electric battery with switch in the cabin. The reader has added siren, whistle, bell, cabin light, deck cleats and coils of ropes—and yet has never been on a ship nor seen a tug! The details apart from those on the design sheet were gleaned from books or pictures. Well done, Mr. Chadwick.

MECHANICAL TOY PADDLE STEAMER



THE centre pages of this issue provide patterns for making the novelty toy illustrated herewith. This is an actual working boat 6½ ins. long. The boat is fitted with paddles and if cut out and painted up, will travel realistically along a bath or large tub of water.

In addition to the wood shown, we need a piece of wire for the axle, two small bits of tin for the brackets, and some elastic to provide the driving power.

Cut the parts out as shown from wood the correct thickness. The main deck is C, and below this is glued the decks B and A. The deck B is in two pieces, and these parts are spaced ½ in. away from each other in the model to allow for the brackets and axle of the paddle wheels. The deck A is a solid piece, and when all are glued together, they should be shaped so the outer edges are all flush.

Probably a better plan will be not to glue the C deck on at all, but to have it screwed down in case you want to get at the elastic pulley, etc. again later.

Cabin Deck

The cabin deck (D) is put 1½ ins. forward from the stern, and on the top of this comes the deck E with its projecting flanges each side. This part is put 1½ ins. forward from the back edge of deck D, which should bring the projecting portions over the paddle openings on the under deck.

The funnel is added to this last piece where indicated by the dotted lines. It is cut from a piece of ¾ in. dowelling and can be made oval if preferred.

Remember to cut the bottom end at the angle shown to give it a rake when glued in place. The dowel is 1 in. long in the first instance.

Mechanical Details

The working portion of the steamer is clearly shown in the details. The paddles themselves are made up of two pieces each halved together and glued with little corner strengthening pieces to provide greater strength. They are pushed hard on to a piece of stiff wire 2½ ins. long which passes over the deck A.

Flatten the end of the wire out and turn it into the wood so it does not twist. The paddle axle is fixed just above the deck itself by means of the two shaped brackets shown in detail. They are easily cut and bent, then three holes bored as shown. Two are to take the screws to fix it down to the deck, and the other allows the axle to be put through.

Of course, this axle must be put through the brackets before both paddle wheels are fixed.

They are screwed to the deck, projecting a little beyond the sides.

At the stern end we want a little flat pulley. A small Meccano ¾ in. one is suitable, or you can make one from a piece of wood if you get a nice groove filed smoothly round the edges.

Elastic Drive

Screw this pulley down to the deck A as shown by the plan, then drive a screw in near the paddle axle to take one end of a length of elastic. Carry this round the pulley itself and tie the other end on to the wire of the axle.

Thus, by turning the paddles you gradually tighten up the elastic so that when released its tension reacts on the paddles and drives them round at a fast speed.

There are just two little pieces required to finish off the paddle guards, and they are shown in the drawing being nailed in place. Notice that the two end edges have to be chamfered to get them to fit at the right angle.

Two little pieces of ¼ in. wood are cut to triangular shape, and glued to the front edge of the boat deck to form steps which are drawn on the sloping front.

Rudder

At the stern a rudder is cut to the shape shown, and fixed by means of a piece of wire driven in, then turned to form the handle portion.

Having completed the construction, test the boat out in water just to see whether it rides correctly. If it is not true you may have to shave some off at one end or one side, or on the other hand, you may have to add a little lead into the keel to get it balanced.

Painting the Model

Having got everything satisfactory, paint the hull and all the parts according to the ordinary colours of a boat. Enamel should be used to make the joints watertight, and to prevent the parts coming away.

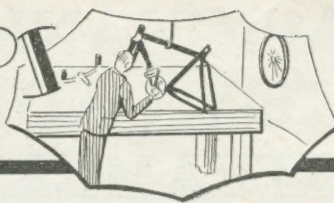
A mast is shown in the drawing of the finished article, and this can be added with wires (consisting of cotton) leading to the bow and to the funnel and to the deck as illustrated.

One point to remember before you start is that as the axle will have to take all the pull of the elastic, do not get the wire for this too fragile. It need not be thick, but it must be strong.



HINTS & TIPS

WORTH KNOWING



For original Tips published the sender will receive a Hobbies Handy Propelling Pencil. We cannot acknowledge all those received, or guarantee to print them. Send to The Editor, Hobbies Weekly, Dereham, Norfolk. Keep them short and add rough pencil sketches if possible.

Model Anchors

IF you want to make an anchor for a ship, take a bolt or 6in. nail and saw down the end, then bend the two parts backwards. Next drill a hole to put the bar



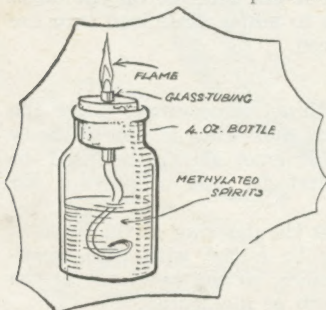
through, then if you like you can saw off the head of the nail and put a loop instead. The picture shows the process which makes a very realistic addition to any model.—(H. Maunsell).

A Pencil Tip

HERE is one of my tips, it is to prevent a pencil dropping out of your pocket. To prevent a pencil dropping out of your pocket when stooping, or rolling down a desk, cut a square washer from a piece of inner tube and slip it over the pencil. When laid on a sloping surface it will not then roll off and when inserted into pocket the washer doubles back and prevents it dropping out.—(J. Fisher).

Chemistry Spirit Lamp

PROCUR E a 4oz. wide mouthed bottle complete with cork. Bore a small hole through the centre and insert a short piece of



glass tubing. Thread a piece of wool about 3ins. long through this. Fill up with methylated spirit and the lamp is ready for use.—(N. Isle).

Cycle Mudguard

SHOULD the fore part of the front mudguard become broken or badly damaged, a cheaper method to buying a new mudguard would be to fix a rear white tail flap costing only two or three coppers. To be fixed on in the usual way at rear.—(E. Taylor).

Home-Made Polish

A GOOD polish for furniture may be made by shredding one ounce of white wax, one ounce of beeswax, one ounce of Castile soap and placing the whole in a stone jar with half a pint of water and half a pint of turpentine. Stand at the side of the fire, stirring occasionally until dissolved. Then beat up until it becomes creamy white.—(C. Huntingford).

Silent Fretmachines

PROCUR E a discarded motor tyre and cut out three small pieces measuring 4ins. by 4ins. If these squares of rubber are placed under the feet of lathes and fretsaws it will be found that the machines run smoothly and silently, and are not likely to slide along the floor.—(D. Dolan).

Storage of Fretsaw Blades

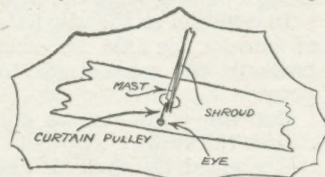
A TEST tube rack complete with tubes is useful for the storage of fretsaw blades. The test tubes should be shorter than the saws and should all be marked with the size of saws they contain. A few drops of thin oil in the tubes will prevent rust, for the oil will creep up the blades.—(D. Dolan).

Saving Bulbs

YOU sometimes find that you have to throw away good electric light bulbs because the glass has become loose and you cannot screw in the reflector. So pour some candle grease where it joins, push the glass in the holder and then pour more candle grease. The bulb will then last a long time.—(E. G. Tostevin).

Yacht Tip

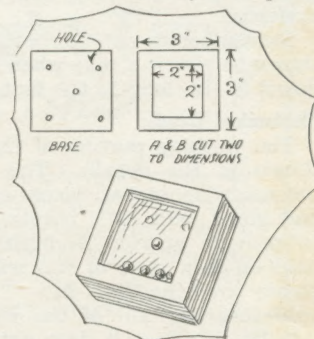
A GOOD tip for yacht owners is as follows. Obtain two curtain runners from a 6d. store or any ironmongers. Their shape



is as shown. The shrouds of the boat can be put round the pulley and this way does not cut them as the ordinary "eye" does.—(R. A. Manley).

Ball Puzzles

I HAVE discovered a quick way of making small or large ball puzzles. Take three pieces of wood (plywood or some thin material) about 3ins. by 3ins. and in two of them cut out of the centre with a fretsaw a square 2ins. by 2ins., so leaving border all round $\frac{1}{2}$ in., then in the piece from which the centre is not taken out, burn about five holes with a steel needle. Glue (a) to the base, then cover (b) with cellophane. Next buy some steel balls from a cycle shop and



put them on the base, then glue (b) on to (a). The puzzle is then finished. The object of the puzzle is to get one ball in each hole. After a small one has been made, bigger ones can be undertaken with tracks and obstacles, and numerous ideas can be worked out.—(P. Jagger).

MODERN ELECTRIC LAMP SHADES

THESE fine shades are all quite easily constructed, and made in clear, translucent material will diffuse the light throughout the room. They are hung in such a manner that the electric lamp is suspended in the centre, so that the light can filter through the material and be deflected from the ceiling. A soft, pleasing glow is the result.

For making these shades Hobbies supply Ivorine, an excellent material for the purpose and practically unbreakable. It is in sheets, measuring 6ins. by 12ins., and the shades are so designed that three sheets will supply the stuff required for each shade.

The First Shape

For making shade A, the sheets are cut as in Fig. 1. First cut diagonally across, then mark a line down one side, $\frac{1}{4}$ in. from the edge. This is the overlap of each sector.

Cut the top and bottom across, and save the angular pieces cut off the bottom as these will supply the ornamental pointed pieces inserted between the sectors.

Take one sector and down the centre of the overlap drill a series of small holes, $\frac{1}{2}$ in. apart. These holes should just be large enough to admit a medium size sewing needle, no more.

On a line $\frac{1}{8}$ in. from the opposite edge of the sector drill a second series of holes. Use this sector as a template by laying it on each of the other sectors in turn and marking the position of the holes thereon by pressing through each

hole a sharp pointed tool. A gramophone needle, fixed in a piece of dowel rod makes a suitable tool for this job.

Now drill the holes carefully on the marks. Remember that the holes on the overlap of one sector must be duplicated on the opposite side of another sector, and the holes must be identical. The sectors are then sewn together, as in Fig. 3.

Ornamental Pieces

The ornamental pieces are each drilled with three holes and fixed between the sectors by including them in the first stitches.

As the shape of the shade is a hexagon, the overlaps should be bent a little inwards, it will also be necessary to bend the ornamental pieces down the middle to fit them closely in the angles.

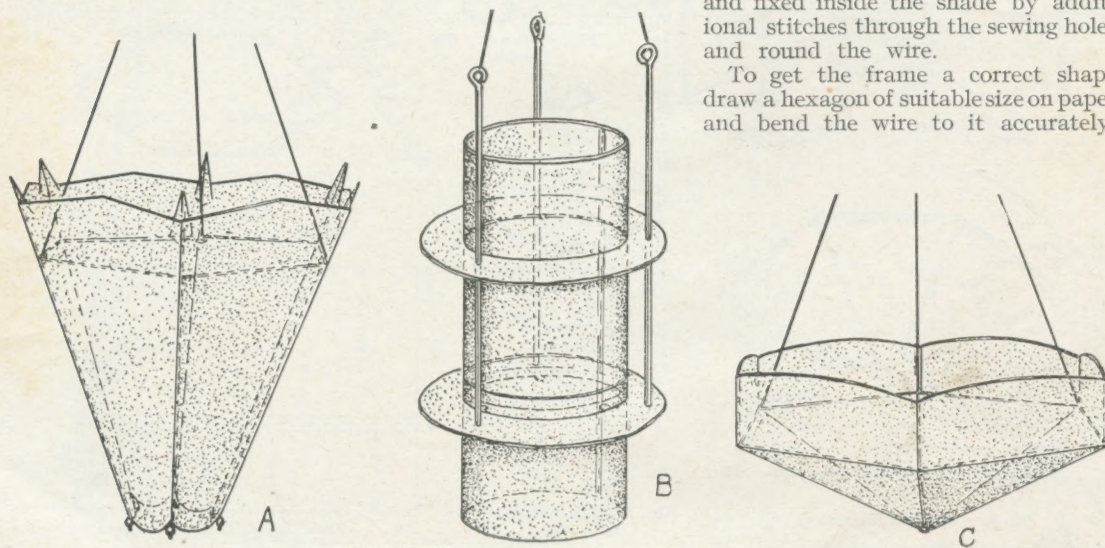
For sewing, use a double thread of strong silk, preferably of a golden yellow colour as this is pleasing in tone and not conspicuous. A simple stitch, as in Fig. 4 is used. First well knot the thread, or fix on the end a tiny glass bead, then pass the needle through hole 1 from the inside.

Now down through 2, up 1 again, down 3, up 2, down 4, up 3, down 5, and so on. Reaching the end, tie off securely. A fancy glass bead of large size can be added with effect at the end.

The Wire Frame

The sewing finished, a wire frame should be made which will correct the shape and provide a means of hanging the shade. This is made of stiff brass wire, bent and soldered, as in Fig. 5, and fixed inside the shade by additional stitches through the sewing holes and round the wire.

To get the frame a correct shape draw a hexagon of suitable size on paper and bend the wire to it accurately.



For shade C, cut two sheets of the Ivorine as shown in Fig. 2. Allow a $\frac{1}{4}$ in. overlap one side and top of each triangle and drill the sewing holes as before described for shade A, one triangle being shown drilled as an example.

Cut off the tips just $\frac{1}{4}$ in. and sew the triangles together. Take the third sheet of Ivorine, and cut it into six pieces, each measuring 6 ins. by 2 ins., trimming the upper edge of each to a slight curve, or cutting it wavy as preferred. Allow a $\frac{1}{4}$ in. one end of each for overlap and drill the sewing holes in both ends and bottom.

The latter row of holes must conform with those already drilled in the top overlap of the triangles. Bend the overlaps slightly inward, the angles will then be sharper and the shape better.

Bending the Overlaps

The bending of the overlaps, by the way, should be done before sewing by laying a straight slip of wood along the overlap line and pressing the material up with the thumb. Now sew the side pieces to the lower shape, as in Fig. 6.

Where the ends of the triangles meet together, a small space will be left owing to tips being cut off.

To fill this up, cut a hexagon of wood, say 1 in. across and $\frac{1}{2}$ in. thick, and shave down as in Fig. 7, to fit inside the shade at the bottom. A small fretwork nail can be driven through each triangle into this piece and the centre space covered by driving in a large headed, fancy nail, the head of which will cover it. A wire strengthening frame is stitched in as before for suspending.

Shade B is of different construction. This is just the size for a hall or small lounge, it is scarcely large enough for an ordinary room.

To make it, first strike two 6 in. circles on one sheet of the Ivorine, and cut out. The inner circles are then cut, leaving three small tabs as shown in Fig. 8, and three holes, say $\frac{1}{16}$ in. diam. drilled equidistant round the central hole. While the diameter of the latter is given as $3\frac{3}{8}$ ins., it will make for a closer fit if the hole in the second ring is cut just $\frac{1}{32}$ in. less all round.

Off one sheet of Ivorine cut a strip $3\frac{1}{2}$ ins. wide and sew to the third sheet as in Fig. 9. Cut the narrow slots to suit the tabs left in the rings.

To get the exact position of these bend a narrow strip of the Ivorine round the holes and mark off where the tabs come. This can be used as a guide for marking the slots. Now bend the Ivorine into a tube and pass the rings over, pressing the tabs into the slots to fix them in position.

Fix a broomstick on the table with cramps, with about a foot of it overhanging the edge. Slip the shade over this, and drill the holes through the overlapping edges of the tube for sewing. Remove from the broomstick and sew together.

Suspension

To suspend the shade, cut three lengths of brass wire and bend the bottom of each to form a small ring. Pass through the holes in the rings of the shade, and bend the tops hook shape, as in Fig. 10.

A light fancy chain or coloured silk cord can be used for hanging the shades or Picture wire.

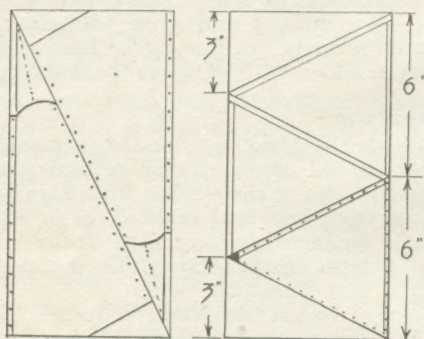


Fig. 1—Shape for Shade A

Fig. 2—Shape for Shade C

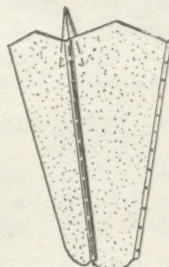


Fig. 3—Sewing the parts

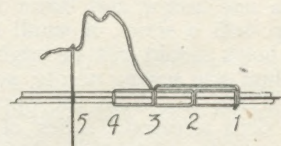


Fig. 4—The simple stitch enlarged

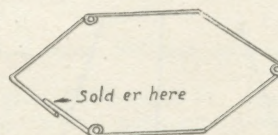


Fig. 5—The wire framework

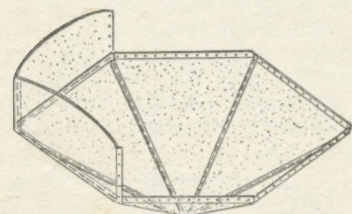


Fig. 6—Completing the shape

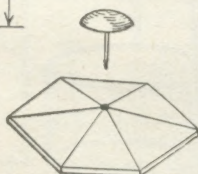


Fig. 7—The wooden bottom



Fig. 8—The horizontal rings

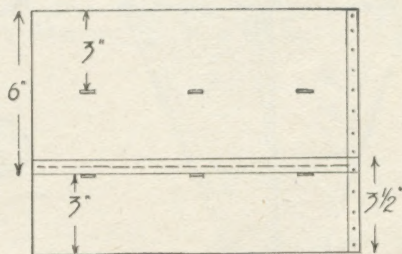


Fig. 9—The cylindrical Shade in Ivorine



Fig. 10—The hanging wires



THERE are many small jobs about the house in connection with the electric wiring which any reader who is handy with tools can carry out for himself without calling in the aid of the professional wireman provided he is clear about the "how" and "why."

One of the most frequent to crop up is the need for extending the wiring from some existing plug point to accommodate some new purchase, such as a mains type radio receiver, a toaster, or an electric clock. As a rule it is anything but convenient to connect such appliances to a lampholder or a pendant, as loose wires hanging about are both unsightly and dangerous.

Instead of making use of the nearest lampholder therefore as a means of attachment it is generally preferable to make use of the nearest plug and socket or "heating" point. One or more of these are usually to be found in all the principal rooms of modern dwellings, being provided for the use of electric fires and other items calling for larger currents than the lamps.

Generally such points will be found on the skirting, consist of a 2-pin socket to take a plug and flexible cord from the appliance.

The House Lighting Circuit

It is as well to acquaint oneself with the principle upon which buildings are wired, and the requirements will then be more easily understood. Fig. 1 illustrates the standard system adopted for house wiring on small and medium sized premises.

Starting at the lower left hand part of this diagram A represents the point of entry for the electric supply mains B the company's service fuses in a sealed box, and C the house meter.

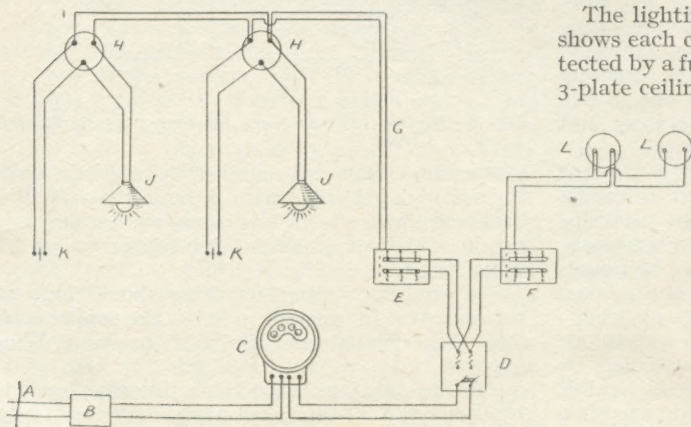


Fig. 1—Diagram of ordinary House Wiring

Up to this point the fittings are company's property and must not be altered in any way by the occupier, but from the meter onwards all wiring switches and other fittings are the consumer's responsibility alone.

The first item D is the double-pole main switch and fuses placed as close to the meter as convenient, and by means of which the whole of the electric supply to the premises can be cut off. Whenever any alterations or additions to the wiring are being carried out the main switch at D should invariably be opened, as there will then be no possibility of incurring "shocks" or of blowing any fuses.

The Cables

From the main switch D the service is split up into two main circuits, one supplying the lights alone, and the other the heating. A pair of main cables is therefore run from this point to the two distribution fuse-boards E and F, each one of which supplies a number of smaller individual circuits carrying up to eight lights on each, or two heating points.

Each of these circuits is protected by a double-pole fuse of its own, the size of which is adjusted so that it melts or "blows" whenever the current in that circuit exceeds its normal value by any considerable extent. The lighting distribution-board E is usually provided with 3-ampere fuses, and the heating distribution-board F with either 10-ampere or 15-ampere fuses.

The rest of the wiring connections will be gathered from the diagram in Fig. 1, only one circuit being shown from each distribution board to avoid confusion.

Lighting

The lighting circuit, for instance, if traced out, shows each circuit to consist of a pair of wires protected by a fuse on each wire serving a succession of 3-plate ceiling roses H, the wires being looped into the terminals and carried forward to the next rose without cutting, feeding each point as it goes. The lamps J and their switches K are connected as shown, leaving each lamp

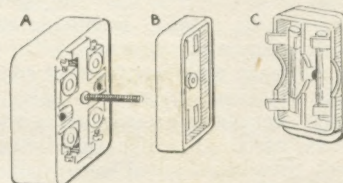


Fig. 2—Details of the "M.K. Fused Connector Box"

under the control of its own switch without affecting the supply of current to the remainder.

This arrangement may vary in detail when two-way switches are required to control a lamp from two different switch points, but it serves to indicate the general principle of wiring. In the same way circuits are run from the distribution board *F* to feed the various heating points shown by the plugs *L, L*.

Two only of these are allowed on each circuit, since they have to be wired for much heavier currents than the lamps.

Heating plug points such as *L, L*, are as a rule far more convenient than lamp points for making extensions in the wiring to suit such items as electric clocks, standard lamps, toasters, irons,

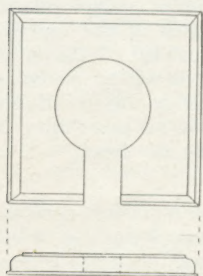


Fig. 3—Wood block for mounting Fuse Box

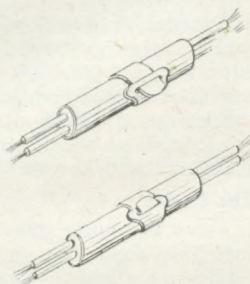


Fig. 6—Showing stages in fixing cable by buckle clips

or wireless receivers, etc., but it is obvious that the heavy fuses that are used in their circuits at the distribution board would afford little or no protection from damage to such apparatus as named above, some of which only take exceedingly small currents.

Any circuit extended from a heating plug therefore must first be protected by running it to a small connector box containing fuses of much smaller current capacity and better proportioned to the comparatively small working currents such additional items would normally consume.

One of the most convenient standard fittings for this purpose is the "M.K. Fused Point Box," illustrated in Fig. 2. There are three separate parts, *A* the base, *B* the shield, and *C* the fuse-carrier. In the latter will be seen four projecting brass contact tongues which are linked together in pairs by miniature cartridge fuses, the carrying capacity of which can be varied from one to five amperes by slipping out the tubular fuses and changing them for others as required.

The four contact tongues engage with the four terminal blocks in the base. Current from the "entry" side then passes through the cartridge fuses before it reaches the "outlet" terminals. The middle portion *B* shields the live terminals from accidental contact with the hand when changing or replacing fuses at any time.

It is assumed, for example, that an electric clock occupying a position on the mantelpiece is to be wired up. The clock will have a flexible cord already attached to the back terminating in a small 2-pin plug, and a socket to suit this can be fixed to the wall in the angle immediately below

the mantelshelf where it is least conspicuous as in Fig. 4.

The flex lead from the clock, after shortening as required, is connected to this small socket, and the socket itself wired back to the fuse box with lead-covered twin cable in the manner shown, fixing the cable along the moulding at the top of the skirting with tinned copper clips of the "buckle" type sold for that purpose, Fig. 5.

Where the cable rises from skirting to mantel these clips require screwing to the wall. If this is of lath and plaster a good hold can usually be found if the screws are $\frac{3}{8}$ in. long, but if the wall is brick, holes must be made and rawlplugs used to take the screws. In either case fix all the clips along the run first, spacing them 9 inches apart.

The cable, which is $\frac{3}{32}$ in. twin lead covered should be shaped approximately to fit the contours before fixing it. It will be found quite flexible and easily bent by the fingers, but sharp turns should be avoided.

The clips are fixed as shown in Fig. 6 being first bent over the cable closely. The strap end is passed through the eye, pulled tight, and lastly turned back on itself to form the grip. Fingers only are necessary, and no hammering should be done. The lead covering can be removed

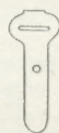


Fig. 5—Buckle clip for twin lead covered cable

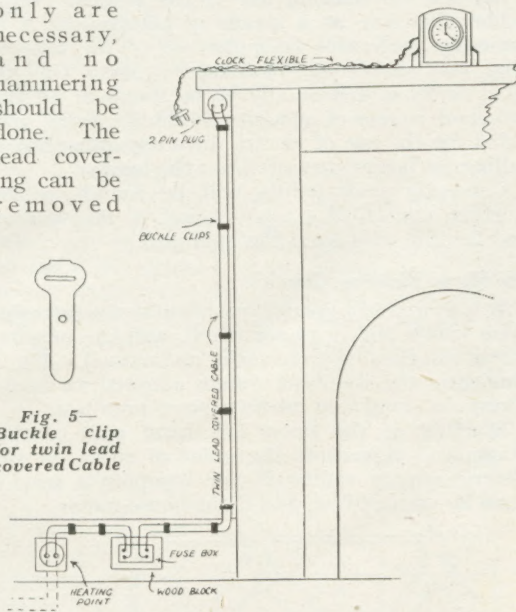
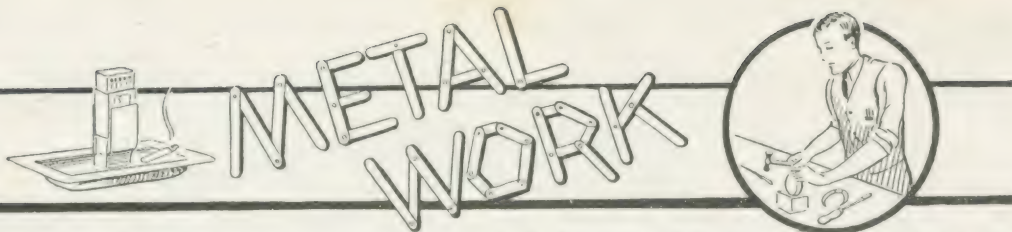


Fig. 4—Wiring scheme from Heating Plug to Electric Clock

where connections are required by nicking round the outside of the lead with a knife; it will then break off short after a few bends to and fro, and can be withdrawn, leaving the insulated twin wires projecting.

The rubber coverings on these should only be removed just far enough to insert the copper cores into the terminal sockets, no bare metal being exposed.

The fuse box is mounted on a thin wood switch-block about $\frac{1}{2}$ in. thick, cut away at the top to the width of two cables, so that they can be run in and out again without damaging the skirting, Fig. 3.



THE making of metal bowls does not differ greatly from the work described in the last article, except that more skill is required to raise them to shape but this should have been acquired after making one of the trays described before. Two simple designs for fruit bowls are shown in Fig. 1.

The size of the disc of metal from which each bowl is made can be varied to choice but a disc of about 9ins. in diameter is suitable for the large bowl and for the small bowl a 7in. one. Copper, 20 gauge in thickness, will be found the most suitable metal because it "works" better than brass.

Raising Methods

Something larger than the small block described in the last article will be required for raising purposes. One method is to obtain a block of wood (a short length of tree branch or trunk is useful) and to cut out a smooth hollow, about 4ins. across, in the end (see Fig. 2).

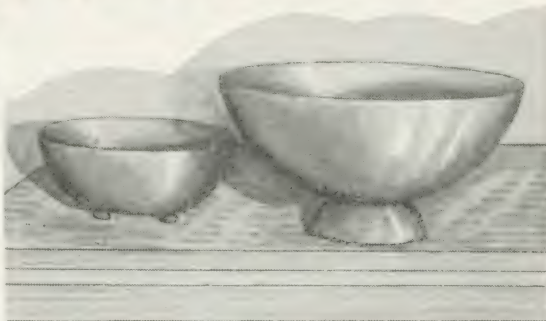
Another method is to use a specially prepared sandbag to hammer on but these are very expensive. A good substitute though can be made at home. To do this make or obtain a bag of good stout material through which sand cannot percolate. It should be filled with fine sand, tightly packed, and the opening firmly tied (Fig. 3).

Now let us make the small bowl in Fig. 1. Cut out the copper disc and true up the edge with a file. Soften the metal by heating. Then lay it in

the hollow end of the wood block or on the sand bag and strike it firmly in the middle with an egg shaped mallet.

Continue striking and moving the disc round in circles and as you work towards the edge raise the bowl up gradually as shown in Fig. 2. Whenever the metal feels hard re-soften it before continuing.

The bowl will begin to take shape during this



METAL BOWLS

process and by carefully manipulating the bowl to different angles whilst hammering you can raise it to almost any shape you desire. After it has become more or less the right shape, have a look at it to see that it is symmetrical and then smooth it out as much as possible with the mallet.

A Suitable Stake

The next job is to prepare a stake for planishing the surface. The larger the stake the better, but a piece of round mild steel or beech about 2ins. in diameter, as shown in Fig. 5, is suitable. The end must be shaped and smoothed carefully to fit the shape of the bowl.

Now soften the bowl again and clean it up as explained in previous articles. Next find the centre point on the outside of the bowl and round it, with compasses, mark a series of concentric circles (Fig. 4) as a guide when planishing.

Planishing

Next smooth the flat face of your hammer with fine emery cloth. Then start planishing on the stake from the centre outwards by striking light blows round the circular lines until you reach the outside edge. Remember that each circle of hammer blows must overlap the previous ones to get a uniform surface.

When the planishing is complete, level up the rim of the bowl with a file and polish the surface.

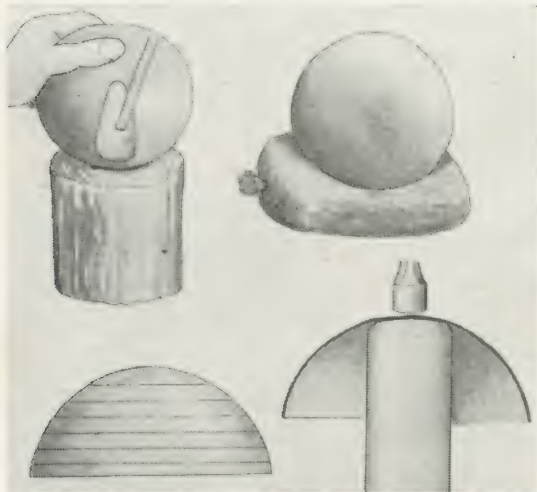


Fig. 2 (above)—On a block of wood

Fig. 3—Raising bowl on bag of sand

Fig. 4 (below)—Guide lines for planishing

Fig. 5 (below)—Planishing on a stake

Next make the three small feet. They can be made from $\frac{1}{4}$ in. pieces cut off a $\frac{1}{2}$ in. copper rod and the edges filed round. These are joined to the bowl by sweating them on with soft solder. To do this solder one face of each foot and the three spots on the bowl where they are to be fixed.

Place them in position and weight them with a heavy piece of iron so that they cannot move. Then heat them with the blow lamp and the solder on each part will melt and run together.

The large bowl in Fig. 1 is virtually two bowls, the base being a small one made from a $\frac{1}{4}$ in. disc. The top and bottom sections are made separately in the manner described above. A circular hole

$1\frac{1}{2}$ in. in diameter is then cut from the centre of the base section so it fits on to the larger one. The two are then soldered together. Use the soldering iron on the inside edges of the base part to ensure a neat job.

Both bowls should be finished with pumice powder and water and polished with metal polish. If you like a copper bronze finish do it like this. Obtain twopenny worth of liver of sulphur from the chemist and boil it up in water.

Wipe the hot solution over the copper article and it will turn nearly black. Quickly, with a piece of clean rag, rub parts of it lightly and a pleasant bronzed effect will be the result.

HOW TO MAKE A BALALAIKA

A BALALAIKA is probably the most simple instrument to make.

First, the neck bracket is shaped out of a piece of wood $1\frac{1}{2}$ by $1\frac{1}{2}$ ins., a half-lap step being cut out in one end, to fit over the projecting tongue left on the neck. The lower curved face is sawn out with a bow-saw and finished up with a spoke-shave, or a piece of glasspaper held on a round former.

It is most important to see that the broad end which butts on to the body of the balalaika is absolutely square in all directions. Note that a projecting tenon is left on the broad end and fits into a groove in the body.

One end of the neck is cut out like a simple half-lap to join up with the neck bracket. The

The body is made of 3-ply wood. Two triangular pieces, each side measuring $1\frac{1}{2}$ ins. are cut, one piece having an oval hole $1\frac{1}{2}$ ins. long cut just above the centre.

Then cut the sides and end of three pieces $1\frac{1}{2}$ ins. long and $1\frac{1}{2}$ in. wide. Chamfer the ends and knock four small brass nails along the centre of one to act as string anchors.

Nail and glue the back on to the neck, using small fretwork nails. Then cut a small sounding-post ($1\frac{1}{2}$ in. length cut from $\frac{1}{4}$ in. dowel would do), and glue just below where the hole in the top piece will come. Now glue on sides, and end, and finally the top.

Strings and Tuning

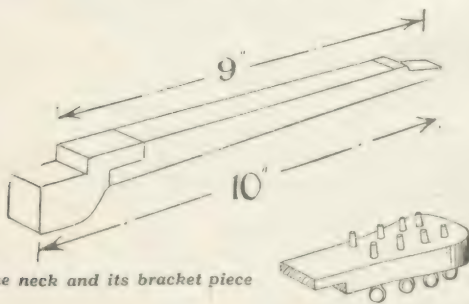
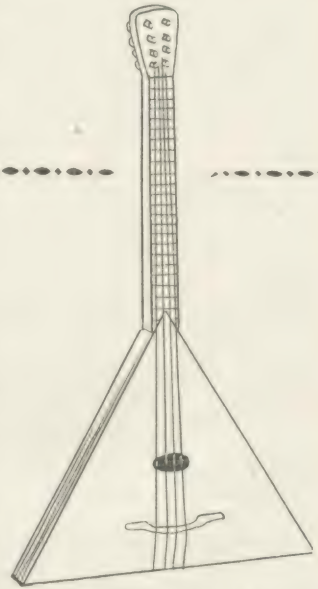
A set of mandolin strings, eight wooden violin pegs, a bridge and plectrum must then be bought.

First put on one string only, and finding where each half-note comes make a thin cut with a fretsaw. Then remove the string and insert frets, i.e., brass wire cut to the width of the neck, into the saw slits.

Then stain the Balalaika with a weak brown stain. When dry, rub over with wax to give it a gloss, but on no account use a varnish, as this is harmful to the tone.

All that remains now is to fit on the strings, which should be tuned four notes lower than named on the paper containers.

You will find that this instrument, which is played like a mandolin, can easily be mastered.



The neck and its bracket piece



The pegs and how they are placed

other end is sawn to leave a sloping surface to which is fastened the key plate.

Thus the board which carries the keys slopes slightly backwards, and this gives a downward pull on the strings at the upper end of the neck.

The key-board is cut to shape with a bow-saw and then half-lapped with a sloping tongue similar to the upper end of the neck member. In this, eight $\frac{1}{4}$ in. holes are bored to admit a set of mandolin pegs.

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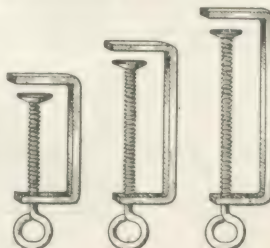
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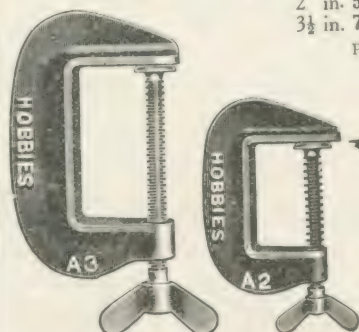
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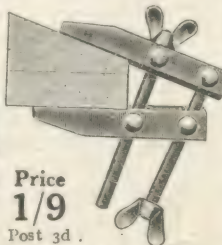
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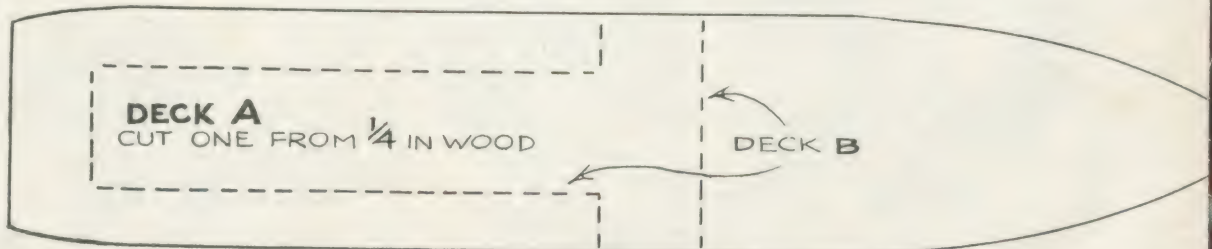
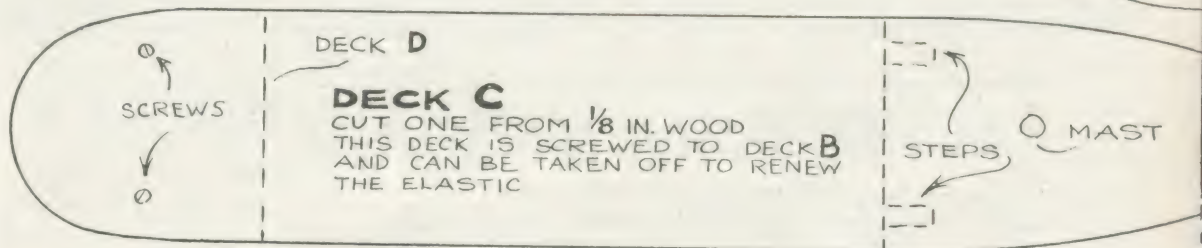
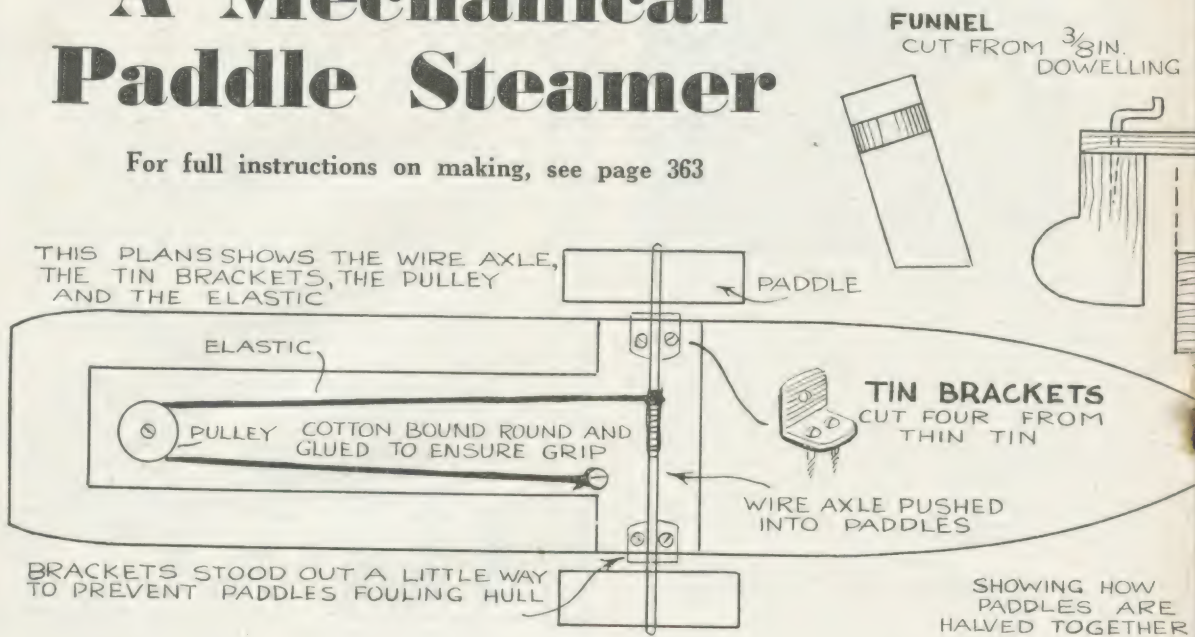


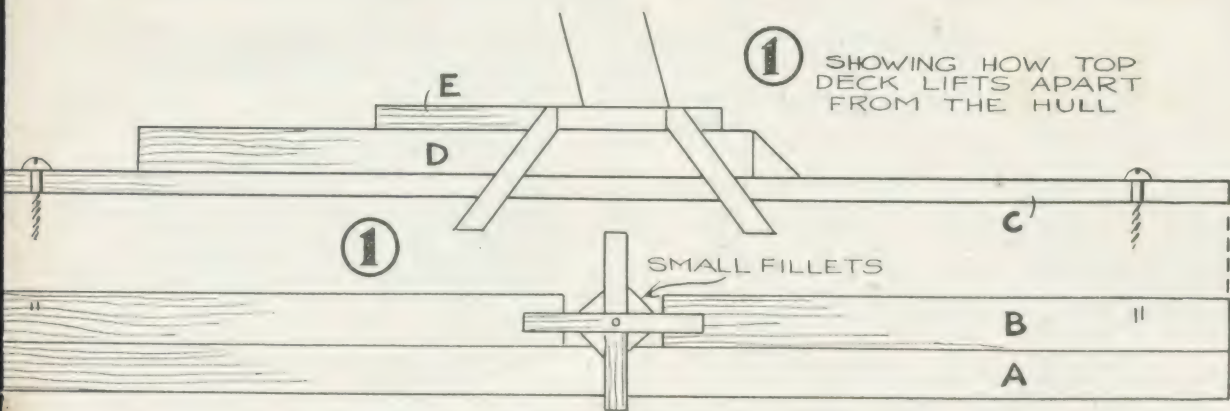
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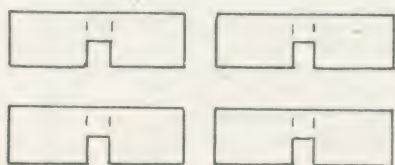
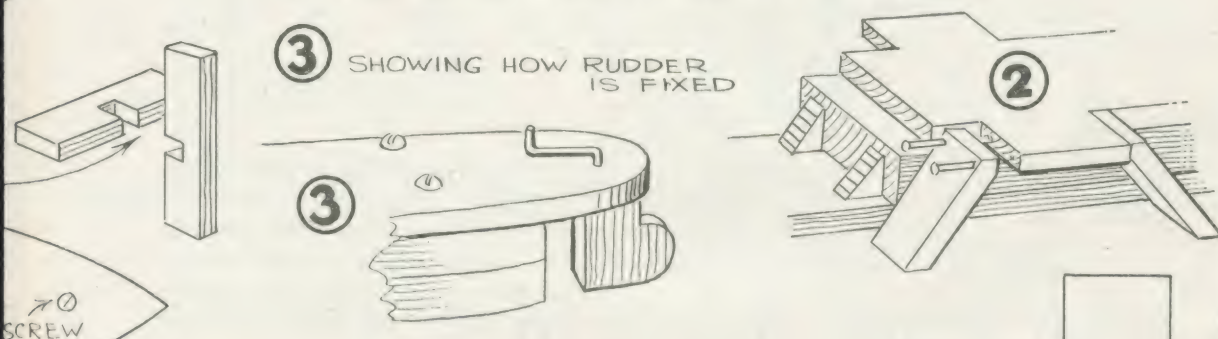
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3 SHOWING HOW RUDDER IS FIXED



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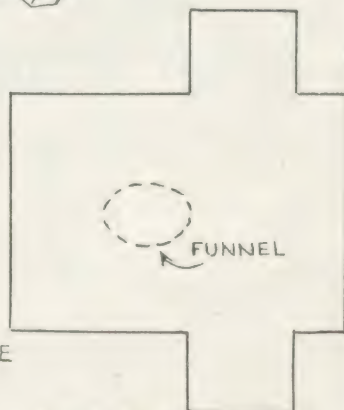
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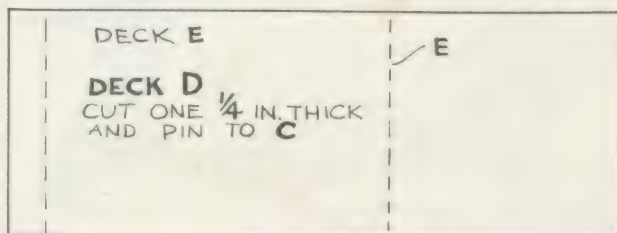
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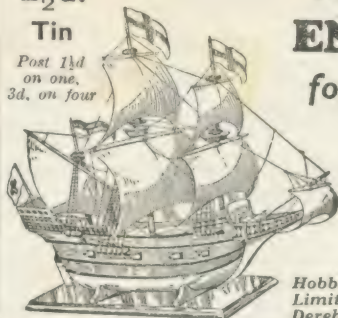
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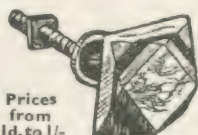
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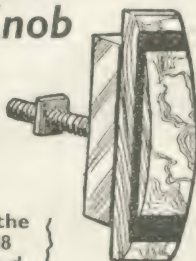
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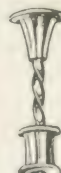


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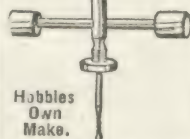


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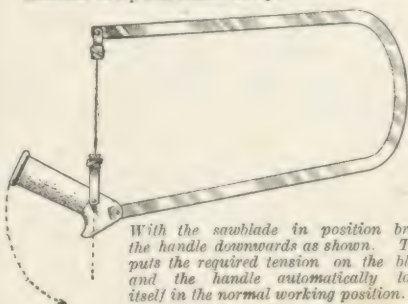
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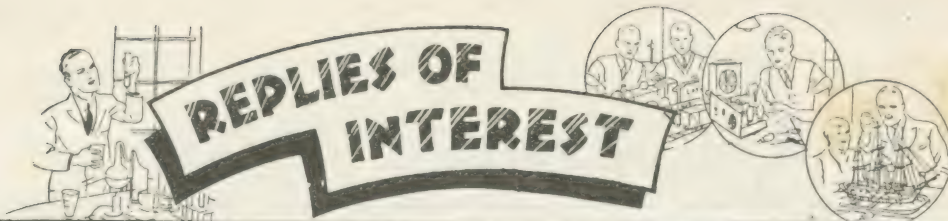
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IHAVE a dynamo which has been used in a V8 car for a selfstarter, and which I want to convert to produce light for my workshop. Can you give me the necessary information?—(J.D.)

YOU state you have a dynamo—surely this is a starter motor? If not, why use it without any conversion as the output is D.C. The dynamo should be used in conjunction with an accumulator. If the machine is a starter motor we do not recommend the conversion, as the cost of the new wire for both armature and fields is in excess of a second-hand dynamo.

Silvering Glass

IHAVE a quantity of old glass negatives which I wish to make into mirrors, and should be obliged if you would kindly let me know the formulae and working instructions on how to accomplish this.—(E.C.)

IT is quite impossible to give in the form of a short answer full details of even the simplest method of silvering glass, but the matter is dealt with comprehensively in "Every Boy His Own Mechanic" (Cassells), and we advise you to see this. The general principle, however, is that silver from a nitrate of silver solution is chemically precipitated on to the glass, and is then protected by a coat of varnish and

red lead. The chemicals required are Silver Nitrate (180 grs.), Caustic Potash (150 grs.), Glucose (75 grs.) and some ammonia. Prepare three solutions: (1) the Silver Nitrate with $3\frac{1}{2}$ ozs. of water, (2) the Caustic Potash with $2\frac{1}{2}$ ozs. of water, (3) the Glucose with $2\frac{1}{2}$ ozs. of water. Add drops of ammonia to $2\frac{1}{2}$ ozs. of (1) till muddy, then continue with a few more until it clears. Now put in some drops of the extra $\frac{1}{2}$ oz. of (1), which has been placed on one side; when clouding takes place, add (2). Put in drops of ammonia until a black precipitation starts, then filter and add further drops of $\frac{1}{2}$ oz. of Silver Nitrate until precipitation again begins, when the addition must be stopped. Pour this mixture into a dish and stir in (3), the Glucose, adding enough distilled water to cover the glass, which should be held free of the bottom. The glass being submerged, silvering will start at once, but it will take about 15 to 30 minutes for a sufficient deposit to be received.

Fixing Pastel Drawings

PLEASE tell me a successful method for fixing pastel drawings without discolouring the work.—(IN.C.M.)

YOU should add three-quarters of an ounce of isinglass to two and a half ounces of distilled vinegar. Let them remain for 24 hours, then pour in a pint of hot water and keep the liquid hot until the isinglass is dissolved. Filter the liquid through white blotting paper and place in a stoppered bottle with the same quantity of rectified spirits of wine. To use the liquid, the drawing should be held horizontally by the four corners, with the surface which has been drawn on downwards. Take care that it does not touch anything. Now paint the fixing fluid on the back of the drawing with a very soft flat camel hair brush, sufficient liquid being used to allow it to penetrate through the paper and render the drawing marks moist. Care must be taken to apply the liquid evenly over the surface of the paper. If this is not done, the

drawing may appear stained when finished. Now go over the back of the drawing again with the liquid, using less this time, and when finished, the drawing should be turned and laid on some flat surface to dry.

Moulding Figures

DO you know one of the resins or anything that will mingle with wax to make it hard and tough, or could you suggest such a composition for moulding ornamental figure work?—(J.B.)

YOU are not clear in your enquiry whether you require a tough wax to make the moulds from which to get castings of ornamental figures, or if you require the tough wax for the figures themselves. In the latter case you can use either (a) equal parts of beeswax and resin, melted under gentle heat and stirred together. This dries fairly hard and is easily melted again. (b) Mix in the following proportions:—1 teacupful of common shellac, 1 teaspoonful of powdered resin, 1 piece beeswax about the size of half a walnut. Melt under gentle heat and stir well. Add any desired colouring pigment such as yellow chrome to colour the mixture. The mixture when dry is tough and hard, but softens if exposed to heat. Most ornamental figurework is cast in moulds made of gelatine. The pattern is waxed or greased, then the gelatine is poured over it in sections and built up. When set, the sections are separately removed, then put together and kept in shape by an external plaster covering (also in sections). Ordinary sealing wax can, perhaps, be used for your purpose.

Chromium Plating

WILL you please give me information concerning chromium-plating work.—(W.L.T.)

UNDER no circumstances should chromium plating be attempted as a hobby—there is grave risk of serious illness or death unless the special precautions are observed.

HOW TO FORM A HARMONICA BAND!

THE harmonica band is quite a new thing, and it is not just a craze but a really big worth-while movement. These mouth-organ bands started in this country less than three years ago, and already there are nearly a thousand of them. In Germany, where the movement began back in the nineteen-twenties, there are actually ten thousand bands in day schools alone. In America there are more still, now the idea is spreading over England.

So many young fellows, and older people too, are keen on music, yet without long and usually expensive training they could never before take part in band or orchestral work.

Cost of Instruments

But the modern band harmonica costs a few shillings; can be carried in the pocket; can be learned without any tuition; and can be used for band work inside a month.

Nearly every youngster gets a mouth-organ at some time or other, and blows a tune on it in some fashion. That is why it is so easy to form a band. Among your friends you are sure to have at least a few who jump at the idea of band work, and who already know something about playing. There is tremendous enjoyment to be had from playing together, and when your band gets going properly it can do so many things—give concerts, play for dances, accompany hymns at church, lead community singing, form a carol party.

Variety of Instruments

Having collected the friends who are to make the band with you, the instruments must then be bought. There are four different ones, each playing a different part of the music. Here are their names, and costs:

H.S.B. Harmonica, tremolo tuning, key G—3/-.

H.S.B. Harmonica, organ tuning, key G—3/-.

H.S.B. Harmonica, alto tuning, key G—3/-.

Vineta accompanying harmonica, key G—7/6.

You can buy them from any music store. The most important ones are the *tremolo tuning*, which play the tune, or "melody part," and the *Vineta* which does the bass. The *organ* and *alto* play the middle parts.

Division of Band

If you have seven players, they should be divided like this: 3 tremolos, 1 organ, 1 alto, 2 vinetas. If you are starting your band with just four members then have: 2 tremolos, 1 organ, 1 vineta.

With a band of more than half-a-dozen you should have a conductor. He need not know a lot about music at the outset—though of course

it is better if he does—he can learn by experience and study, like the others.

Besides instruments, you will need two books for each member of your band—one of music, one of general band information and harmonica exercises. These two cost a shilling each and any music shop or bookseller will supply them if you give the name of the book and that of the publisher (given here in brackets). "The Hohner Harmonica Song Book, No. 2" (Francis and Day's); "The Hohner Harmonica Band Book" (Pilgrim Press).

A Start

Nothing else is really necessary. More music, music stands, a set of drums, and so on, can be obtained later on, if you wish. With instruments and the two books mentioned you can get to work straight away.

The Song Book gives full instructions on how to play your instrument, and contains a big variety of band music. The Band Book gives home studies and advice on all band activities. So these can be read over carefully at home before the first united practice.

Parts to Play

Most likely your band members who have previously played mouth-organs will be used to blowing a number of notes together, and filling in with vamping chords.

That is not the sort of playing required for band work however, so the first job of everyone must be to learn to play single notes. For in proper part playing, each of the three top part players has a single-note line to perform. The vineta alone does chords.

How to Play

When you put the harmonica to your mouth ordinarily the lips enclose four holes, and, if you blow or draw, all those holes are sounded. But if you push your tongue forward against the front edge of the instrument, then it is easy to stop the three holes on the left and only let the air pass through the hole on the right.

That is what must be done in band playing. The simplest way to practise this is to go up and down the scale, commencing on blow-note 7 of the harmonica. The numbers on the band harmonicas, along the top plate, are a great help to beginners.

Even if you know nothing whatever about music you are still able to read it, because above every note a number is printed—if it is proper harmonica music—and you have just to blow or

draw that note on your instrument which is under the same number.

You will notice that the 6th and 7th notes of the scale—*la* and *te*—are both draw notes.

One good way to begin your band work is to decide on one tune—perhaps “Here’s a Health unto His Majesty,” which is the first in your Song Book. Everyone can then try this over at home. Then when you meet you can work at it together.

Before you separate decide on a second tune—“Daisy Bell” is a good one—and let all learn this at home in the same way, ready for next time.

At first it is a good plan to have organs and altos playing the melody part, though when you settle down they will naturally want to take their own notes.

The Conductor

If you have a conductor he must learn how to beat time. There are only three main sorts of beating—for two beats, for three beats, for four beats to the bar.

In two beats to the bar the conductor’s stick

goes down, and up. In three beats it goes down, to the right, then up—a sort of triangle. For four beats—down, to the left, to the right, up.

Notice that the stick must always go down on the first beat in the bar, that is of great importance and guidance to band players.

Care of Instruments

Take care of your instruments. They must be kept clean and dry. Never have a harmonica loose in your pocket, it should be carried either in its box or wrapped in a cloth. If moisture gets in when you are playing shake it out by tapping the front of the harmonica sharply on the hand or knee.

Do not blow too hard, or you will strain the delicate reeds and put them out of tune. Do not lend your harmonica to another person, it is not healthy to have two people blowing on the same mouthpiece.

We shall be very glad to give further help and advice if you write to the Editor, and hope to hear about your band, anyhow.

HELPFUL HINTS ABOUT POLISHING

Oiling and Matching in French Polishing

If you have a piece of furniture which has become scratched or worn, the following is a method of renovating it.

Having made good all defects, wipe over with a rag moistened with linseed oil, which will cause the old and faded work to appear darker where the polish is removed; on comparatively new work a light place will show.

This difference in colour requires to be matched by the aid of stains, dry colours, or dyed polish; light mahogany places are darkened by wiping over with strong soda water, lime water, or solutions of bichromate of potash, and light places in walnut by wiping over with one pennyworth of asphaltum dissolved in $\frac{1}{2}$ pt. of turps.

If the faded polish or light places are not matched by the above means, body the portion up by passing the polish pad over it several times to prevent the grain rising; then colour up by mixing suitable pigments in 1 part of polish and 3 parts of spirit.

For walnut add dry brown amber or vandyke brown with a little black, and apply with a small tuft of wadding or a camel-hair brush.

A wavy appearance may be obtained by a tremulous movement of the hand, and a mottled appearance by gently dabbing with a badger softener or soft dusting brush, such as a sash tool, while wet.

If rosewood, mix a little red stain and black, and after allowing the stain to set for a few minutes, smooth down with fine worn glasspaper, and apply a thin coat of spirit varnish. The polishing ingredients are the same as for new work, but thinner.

A tinge of red stain in the polish improves walnut, mahogany, and rosewood; but if for the purpose of matching any particular portion, a strong colour should be used on the polishing pad, finishing off with clean polish on another rubber.

All carved portions, mouldings, and parts difficult to finish with a pad, should be varnished.

Water Marks on French Polished Surfaces

If you wish to remove water marks from a french polished surface, the following instructions will help you.

French polish containing an excess of soft gums or resin will readily show marks. The polish should be made by dissolving good quality shellac only in methylated spirit, and in its application each rubber should be worked out fairly dry, so causing the lac solution to amalgamate with the wood fibres and leave only a thin film of lac on the surface.

The original colour can oft-times be restored by wiping over with raw linseed oil and rubbing the surface with a swab of clean rag made moist (not wet) with methylated spirit; apply lightly at first and exert slight pressure as the spirit dies out.

When the french-polished surface has been restored to its original colour and all trace of greasiness is removed, wipe over with benzoline or with water in which common washing-soda has been dissolved (a lump of soda the size of a walnut in 1 pt. of water), and then give the work, if this is a bath top for instance, an even coat of good quality, copal varnish.

This will produce a surface that will give better wearing results than anything else and will not readily mark with water.

SIMPLE FASCINATING PUZZLES IN WOOD

DISSECTION problems are probably amongst the most intriguing of all those encountered by a puzzle-fiend. The main interest of course varies, sometimes being the actual cutting up of a given figure, often the re-arranging of the pieces, so formed, to give another shape.

The first of this short series is particularly clever. A crescent is cut into no more than six pieces, from which a cross consisting of five equal squares may be made. Thus a figure whose perimeter is almost entirely curved, is reformed to give one with straight edges.

Take two centres $\frac{1}{16}$ in. apart and draw two arcs, each with radius $2\frac{9}{16}$ in. to form the crescent. Both the horns are straightened on the outside edges for $\frac{1}{16}$ in., as is the centre on both sides. Fig. 1 will make this perfectly clear.

Cut two of Each

It is advisable with this, as with the following puzzles, to cut a number of the original figure in thin plywood, which can be handed to your friends with instructions, as the opportunity occurs.

One copy should be cut in wood, and divided into the various pieces, so that you can show the solution at any time.

Fig. 1 also shows how the crescent is divided into the six pieces. The horns are cut off at the end of the $\frac{1}{16}$ in. straights, and at right angles to them. Cut off the arcs BD, EF, LH and GJ, equal to the inside arc of either of these small pieces.

These marks give you all the points on the perimeter from which the cuts are made. These cuts are all straight, and either parallel or at right angles to the straight edges of the horns. This is sufficient explanation of the diagram for you to proceed.

The Kennel Puzzle

A rather ingenious young fellow was once constructing a dog kennel, and finding himself with only a square of old wood from which to form the back, he divided it into three pieces.

These he re-assembled in the required shape. A convenient size to cut your squares is 2 ins., and the method of division is shown at Fig. 2.

The third shows a diamond with stepped edges, which is to be cut into four pieces to form a square. If the figure is based on $\frac{1}{4}$ in. squares it will give a nice size for handling.

If preferred, you may give your friend also a square, slightly less than 2 ins., and see if he can divide each of the figures into four pieces each, all eight being the same size and shape.

Changeable Pieces

Fig. 4 shows a piece of material 3 ins. by 2 ins. divided into thirteen pieces. Eight of these may be arranged to form a square, area 4 sq. ins.; twelve may be arranged in a square of 5 sq. ins.; and the whole lot in a square of 6 sq. ins. Thus you can invite your pals to arrange them successively into the four forms. The versatility of

(Continued at foot of page 380)

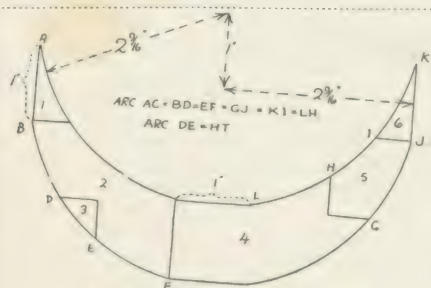


Fig. 1—How to cut the crescent

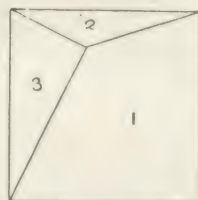


Fig. 2—How to cut the square for kennel end



Fig. 3—How to cut the diamond

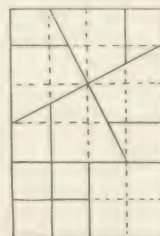


Fig. 4—How to divide the oblong

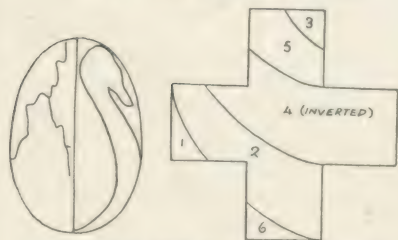


Fig. 5—The cracked egg

Fig. 6—Cross and crescent solution



Fig. 7—The kennel solution

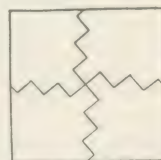
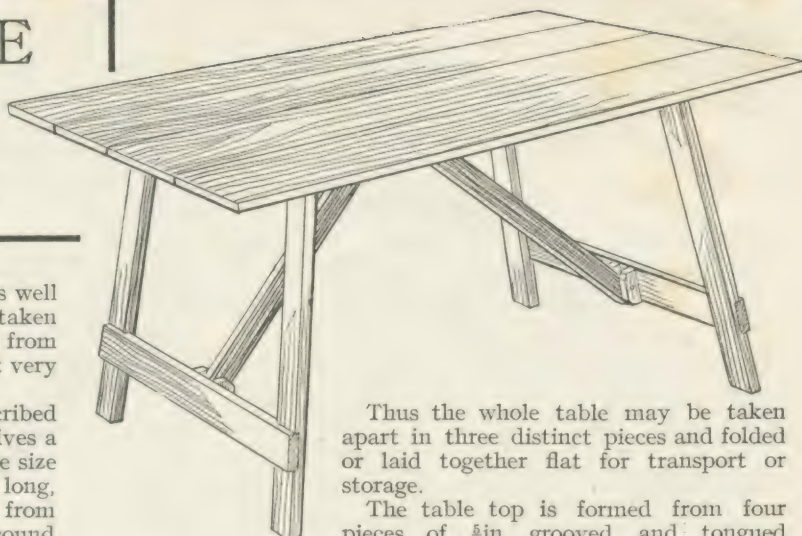


Fig. 8—Solving the Diamond



Fig. 9—The first square solution

A LARGE Folding TABLE



A TABLE for indoor use as well as outdoor, that can be taken apart, stored or changed from place to place may be made at very little expense.

Such a table is being described here, and the sketch shown gives a good idea of how it looks. The size of the table top is 36ins. long, 22ins. wide, and the height from floor to top is 27ins. Good sound deal should be used throughout, and when finished, the wood may be either left in its clean state or may be stained.

General Construction

The method of erecting the table is shown in Fig. 1. There is a perfectly plain top with cross battens on the underside so spaced that they form recesses into which the leg trestles rest. The latter are held rigidly by cross braces.

At the junctions between the braces and the table top, there is a slightly tapered dowel pin to be driven through the bracket pieces which are fixed to the underside of the table top and through the holes in the tops of the braces. The lower ends of the braces are permanently pivoted to brackets framed on to the lower cross rails of the leg trestles.

Thus the whole table may be taken apart in three distinct pieces and folded or laid together flat for transport or storage.

The table top is formed from four pieces of $\frac{5}{8}$ in. grooved and tongued matchboarding, cut in 36in. lengths and knocked together as shown in Fig. 2. The groove along one edge, and the tongue along the other side edge has to be planed away to present properly squared edges.

To hold these boards well together, and to form the recesses for the legs, there must be four pieces of 1in. square stuff 18ins. long screwed to the underside at the distance shown in Fig. 1. Each pair is spaced $1\frac{1}{2}$ ins. apart, which allows ample room for the insertion of the legs.

To the underside of the top also there are screwed two shaped bracket pieces (B) 6ins. long, 2ins. wide and $\frac{5}{8}$ in. thick.

They must be put $1\frac{1}{2}$ ins. apart to allow for the two braces which will come between them, and which will eventually be held by the tapered dowel. Make quite certain to get these brackets

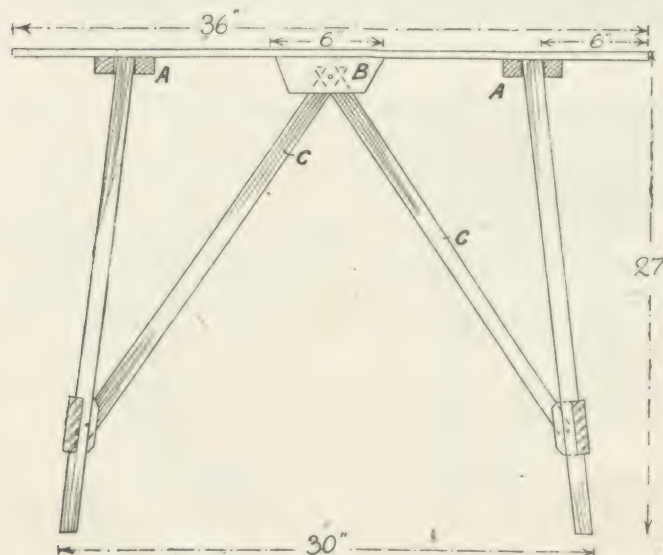


Fig. 1—Side view showing construction and supports

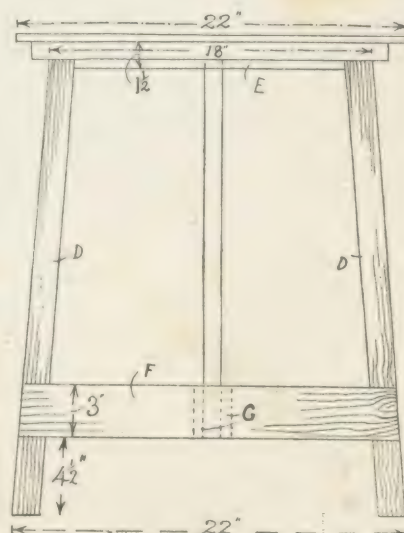


Fig. 3—End view with dimensions

central both ways or the table will not stand rigid when erected.

Bore a $\frac{1}{4}$ in. hole through the two pieces and enlarge one of them to almost $\frac{3}{8}$ in. to take the tapered dowel which should be of hard wood $\frac{3}{8}$ in. diam. glasspapered off slightly towards one end.

The top finished so far may be laid aside and

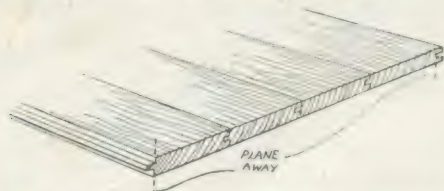


Fig. 2—The tongue and groove edges to be planed off

the legs proceeded with. There is a little more work in these, such as the open slotting or open halving joints to the top rails, and the half-cut through recesses for the lower rails.

The general arrangement of the legs and rails is shown in Fig. 3, where D is the legs 27 ins. long, $1\frac{1}{2}$ ins. wide and $\frac{3}{4}$ in. thick, E, the top rails 18 ins. long, $1\frac{1}{2}$ ins. wide and $\frac{3}{8}$ in. thick, and F, the lower rails 21 $\frac{1}{2}$ ins. long, 3 ins. wide and $\frac{7}{8}$ in. thick.

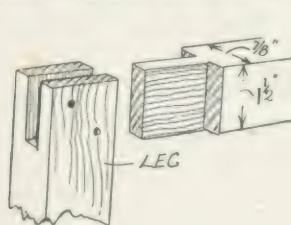


Fig. 4—Joint of the top rail

The simple jointing together of these parts is shown in Figs. 4 and 5, the former figure showing the top rail jointing, and the latter the halving of the lower rails into the legs.

The joints may be fastened either by counter-sunk screws or by $\frac{1}{4}$ in. dowel pins properly bored



Fig. 5—Joint of the lower rail

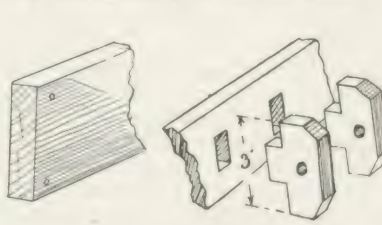


Fig. 6—The bracket piece

for, and glued and knocked well home. Clean off the ends of the cross rails flush with the legs, and then cut and fit the small pivot brackets G on the lower cross rails.

These brackets are shown in detail in Fig. 6, they are cut in pairs and each from $\frac{3}{8}$ in. stuff 3 ins. long, $1\frac{3}{8}$ ins. wide, including the tenon.

The small tenon on each bracket must be accurately marked out and can be cut with the fretsaw, and in getting the correct places for them on the rails, do not forget to take into account the fact that the braces which go between them are brought up side by side to the underside of the table top.

The brackets will, therefore be $\frac{1}{2}$ in. or so out of centre on the rails each way, so there will be no strain on the pivot pins which hold the braces to the brackets.

The pivot holes in the brackets should be bored $\frac{1}{4}$ in. diam. to take $\frac{1}{4}$ in. hard wood dowelling.

The braces are each about 27 ins. long by 1 in. by $\frac{3}{8}$ in. thick, and are bored near the ends for the tapered pins and the pivot pins as shown in the sketch and in the elevation of the Table Fig. 1. Shape the ends of the braces suitably and see that they move freely round the pins.

Puzzles in Wood—(Continued from page 378)

the pieces is extremely baffling and each of the squares call for an entirely different arrangement.

Fig. 5 represents a cracked egg. It is simply an oval, longest diameter $2\frac{1}{2}$ ins., shortest $1\frac{3}{4}$ ins., the "crack" being painted on as shown by the thick lines. The dotted lines show the relative position of the marking on the underside.

"The egg is cracked" you tell your pal "because the swan is ready to emerge." The egg has to be cut into four pieces, which put together

form the shape of a swan without any of the markings showing.

The solutions are given in Figs. 6 to 13. Looking them over you will see there is "something different" in each of them.

They form a splendid variety, none but the fourth being strictly a geometrical problem, and only that if the would-be solver is invited to dissect the three by two rectangle. Sufficient skill is called for to keep anyone busy for hours.



Fig. 10
The second square



Fig. 11
The third square



Fig. 12—How to cut the egg



Fig. 13—The swan solution

The EDITOR'S NOTES



ANOTHER issue packed with good things for everyone concerned—fretwork, carpentry, electricity, philately, model making and so on. No wonder our circulation is going up by leaps and bounds each week. No wonder the newsagents keep wiring for more copies. You really must arrange to have a copy kept for you or delivered every Wednesday, or you will be disappointed. There are more and more good things coming, so it would be a pity to miss them, wouldn't it?

AT last the result of the Competitions in the Christmas Number. Phew! What a number there were, and what a time they took to judge. The "Mistakes" was the more popular and some readers had a wonderful time sorting out the picture. The artist deliberately made 22 errors, but one good scout found 153! Of course, only those giving the correct list were in the running, but even so there were half a dozen who got them right. Of these, neatness had to count for position, and the awards were made to Brian D. Milling (who is only 11 years of age) of Chester Road, Boothtown, Halifax. He has already received his Gen Machine—got it as a Christmas present, in fact! The other two principal prizes were awarded R. Gage, Rue de la Republique, Bapaume Pde., C., France and Stanley Green of Scar View, Cowling, Keighley, Yorks., who have also received nice presents.

The actual mistakes the artist made will probably be of interest. The picture view was upside down, the leg of the chair was broken, the clock figures were wrong, and the kettle was boiling on the cupboard. Then neither the lamp nor the cleaner had any flex, the Calendar had only one string, while the stove had no door. In the window, the latch was on the wrong side and the curtains were outside. The table had odd legs, the duck had a chicken's head and the jug handle was on the wrong side. The drawer handles were wrong, there was tea and coffee on the same canister, whilst the flourbin had fruit in it. There was no light to the switch, the girl's pocket was upside down, the electric iron flex was the wrong side, and the door had hinges and handle the

same side. The cleaner bag, you will notice, was not attached to the handle, whilst the saucepan had two. Now you can check your own list.

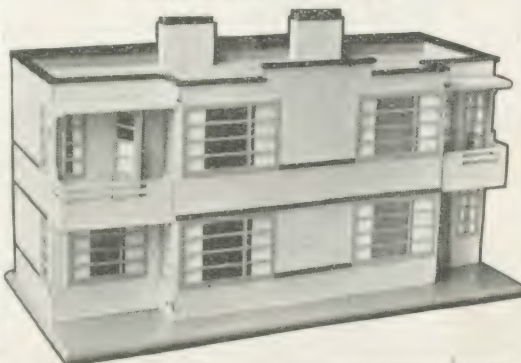
By the way, there were several very original entries, some cut in wood, some hand-painted, and some in book form. Special prizes have been awarded for these.

IN the same issue was a Stamp Competition which proved exceedingly popular. There were a surprising number of keen collectors who spotted all the parts and were able to name them correctly. As a consequence, the valuable Stamp Catalogue prizes had to be awarded to the neatest in the Junior and Open Sections. They were won respectively by Joseph Athersuch, Springfield Road, Coventry and Joseph A. Maguire, 375 Crumlin Road, Belfast, and the prizes sent. My Stamp Expert was delighted with the excellent response and is hoping to have another competition a little later. Have you any suggestions about it? And the stamps illustrated in the competition were of Transvaal, Egypt, Roumania, Trinidad, France, Poland, Denmark, and Western Australia.

ALTHOUGH there was a large number of entries in our Scout Competition there were only four who got the list correct. In consequence I gave a prize to all of them. They were Vivian Stead of Ventnor Street, Manchester, Daniel P. Hanrahan, Listowel, Co. Kerry, Harold Phelps, Roseberry Gardens, Harringay, London and Ronald Crompton, Needwood Road, Collyhurst, Manchester. The correct list was: Mat, Roof, Draft, Hole, Life, Lungs, Hobby. Further novel competitions appear regularly, remember in our Scout Notes monthly.

MODERN DOLL'S HOUSE

Design free next week.



I must call your attention specially to the wonderful doll's house of which a picture is given here, because it is a striking modern model anyone should make. Patterns and particulars will appear next week. The house is of modern type and the whole front can be taken away to allow access to the eight rooms. Be sure to get your copy and this gift design chart.

The Editor

MISCELLANEOUS ADVERTISEMENTS

The advertisements are inserted at the rate of 2d. per word prepaid. Name and address are counted, but initials or groups, such as E.P.S. or 1/11/6 are accepted as one word. Postal Order and Stamps must accompany the order. They will be inserted in the earliest issue. To sell anything except fretwork goods or those shown in Hobbies Handbook. Orders can be sent either to Hobbies Weekly, Advertisement Dept. 30/32 Ludgate Hill, London, E.C.4, or Dereham, Norfolk.

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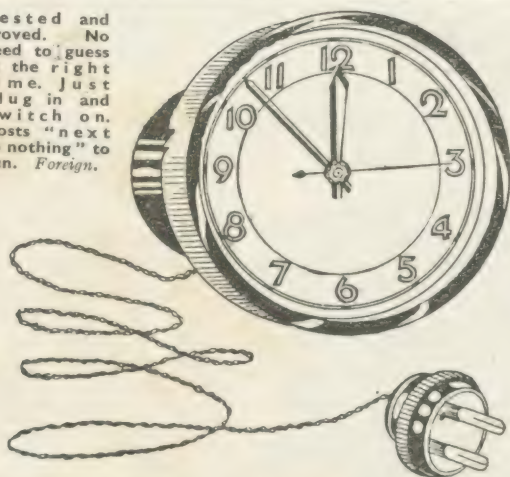
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STAMP COLLECTOR'S CORNER

NOTES ON NEW ISSUES

VERY shortly we shall have all the Christmas Charity stamps, but, with the exception of the New Zealand, German and Austrian, they are not out in time for these notes.

The New Zealand stamp is shown here. Readers may like the picture of the boy scout (that is presumably what he is meant to be), but why have they drawn him with his stockings fallen down? Surely a scout would take more pride in his appearance? Perhaps it may add to one's happiness to have one's



The New Zealand Health Stamp

stockings down, but as a stamp illustration it seems out of place. You will remember that the health stamp of last year had a very pretty little girl looking through a life belt, while on each side of

her were camp scenes.

Last year Germany had her famous roads shown on her Winter Relief stamps. This year she has a set of far more general appeal than that—nine stamps, each of which has a picture of a ship. The lowest value shows a lifeboat on its way to a wreck seen in the distance.

This stamp is shown here as is also the second value, the Elbe river lightship—or at least one of the Elbe lightships.

It is not quite right to say this is the first time a lifeboat has appeared as the theme of a stamp design, because Holland in 1924, issued two stamps in connection with the Dutch Lifeboat centenary.

This is however, the first time one can recognise such a craft, because in the case of the Dutch stamps it was quite impossible to say what was intended. They used a very conventional ship to depict what they meant, and had it not been for the writing on the stamp, nobody could have known what it was.

Holland's Marine Insurance stamps are in a measure somewhat after the style of the lightship, as they showed the unsinkable safe which was furnished with flares. The purpose of this was to indicate the presence of the safe, so that it should be found, rather than to warn shipping to keep clear of it as a danger.

The remainder of the German Ships series shows various types and only the 15pf. calls for comment as to its design. This has the ferry boat which plies between Sweden and Germany.

Altogether, this is a very nice set of stamps, which should be in the hands of all those who make boats a topic for collecting.

The Austrian Charity stamps are not very attractive, a nurse feeding an infant certainly depicts the reason for issuing the set, but the design has not been treated very picturesquely, and consequently the set is not likely to become very popular. Since the stamps are to a great measure issued to entice people to aid a charity, it is a pity that a better set has not been given—that is from the point of view of the charity.

Austria has, however, produced a far more interesting set to commemorate the centenary of the Austrian Railways; three stamps printed in photogravure. The 12gr. shows a very early steam

Messrs. Stanley Gibbons chronicle two stamps from the Belgian Congo, one showing a riverside scene, and the other an Okapi—one of the giraffe family. The Okapi is smaller and differently marked from its better-known cousin. Most of the upper parts are plum-coloured, the sides of the hindquarters and the upper parts of white with the dark transverse bars.

The same firm also notify two attractive stamps from Ruanda-urundi, one showing a wooden pot hewer, and the other leather workers. Messrs. Whitfield King & Co. say that Sweden will be soon issuing a set commemorating the foundation of the Swedish Colony of New Sweden on the banks of the river Delaware 300 years ago.

This should prove to be quite an interesting and historical set, and one which will add very much to the collection of any one who takes the trouble to make a study of the history of the United States of America as shown on postage stamps.

That is a theme which would repay the time and the trouble of any collector to study. There is such a wealth of material which can be had at a very low price, that readers might do much worse than take this suggestion seriously to heart.

Just pick up your catalogue



German Charity Stamp for Winter Relief



A German Lightship



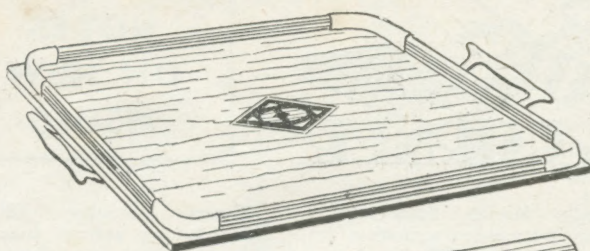
An Austrian Railway Centenary Stamp

engine, the 25gr. the modern type of locomotive, and the 35gr. shows an electric train.

The dates 1837—1937 shows that Austria was somewhat behind in fostering the railway. In fact she did not really encourage it until 1838, whereas George Stephenson's railway between Stockton and Darlington was opened in 1825, remember.

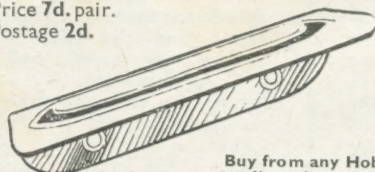
and see what a splendid show could be made with very little outlay. It would, of course, have to be written up properly if the collection was to be shown, but the exercise of doing this would be a labour of love.

Of course, if you can get it neatly typed, or made into a neat book with suitable cover—well it will be better.

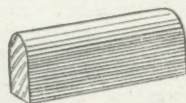


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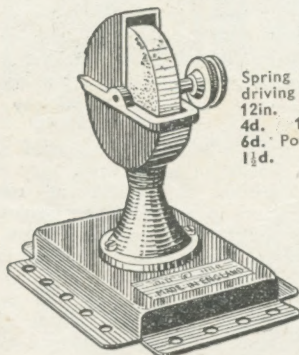
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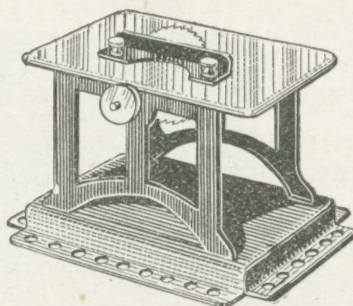
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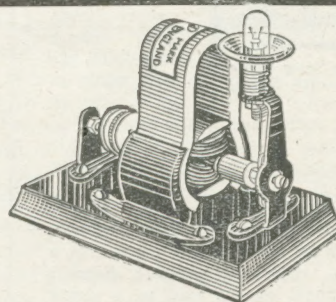
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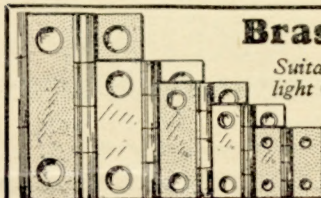
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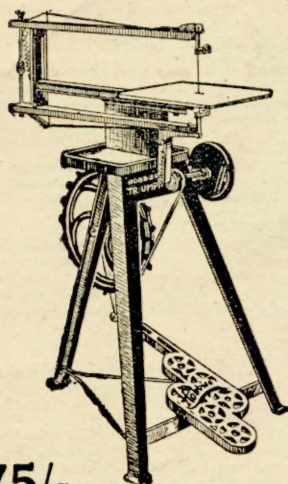
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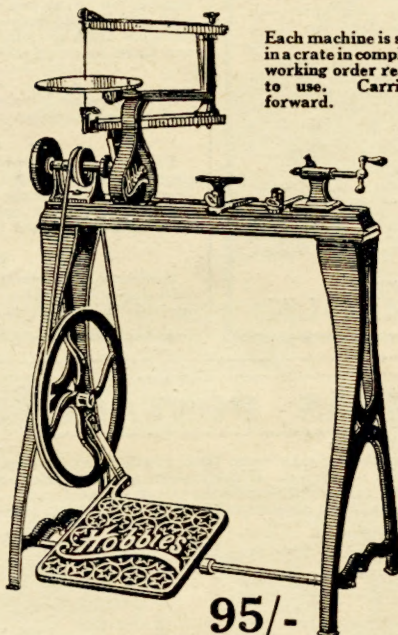
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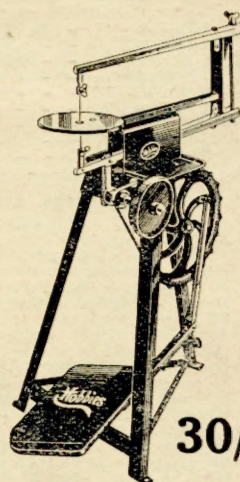
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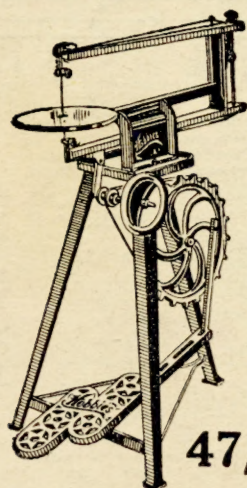
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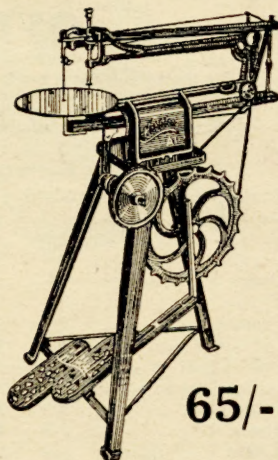
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